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ABSTRACT

Charting is based on the assumptions that relevant curricula will attract and maintain student interest, and that continued poor enrollment in courses is indicative of weaknesses in instruction, curriculum, or site/environment. Charting success or failure in these areas within the model of weekly student contact hours, average daily attendance (ADA), and enrollments can provide managers with a low cost, accurate, and simple tool for program evaluation. Decisions of when to cancel or offer certain classes are typically influenced by space availability, resource limitations, program territoriality, and personal biases. At De Anza College, these decisions are based on scientifically accumulated and analyzed data; class seat information is used to chart enrollments for four critical periods: pre-enrollment, first class meeting, first census period, and second census period. Minimum and maximum enrollments are established with parameters for amount of monies available, cost of program, and political climate. Formulas for successful maintenance of funding for ADA counts are based on student retention factors and gross enrollment figures. Observations based on De Anza's experience with charting, their policies regarding class cancellation, and their use of gross enrollment numbers to determine course success are presented. Data tables summarize rate of retention and gross enrollment by site, program, and for single course offerings. (MB)

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CHARTING AS A MANAGEMENT TECHNIQUE FOR COURSE OFFERINGS AT OFF CAMPUS SITES/DE ANZA COLLEGE FALL 1978-1979

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by

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INTRODUCTION

Too often, classes are offered in the Extended Campus[1] as part of historical patterns and not as representative vehicles to meet community needs. The Extended Campus must remain a flexible and dynamic system of outreach if the various communities within De Anza College attendance area are to be properly served.

Public education in California is passing through a period of great scrutiny that requires the best from its institutions. Instructional staff, facilities, and resources must not be squandered on programs and courses that fail to attract students.

Occasionally, courses and programs were developed and instituted to meet a set of needs. These needs, while theoretically still valid, may lack the student appeal necessary to make them economically feasible as college offerings. As long as the institution considers income on Average Daily Attendance (ADA) crucial for survival, then, care must be taken by management to provide the system with continual feedback on the success ratio, by quarter, of the various programs, courses and members of the instructional staff off-campus.

The assumption upon which this type of research is based are: (1) a belief that management is responsible for red-flagging weak spots within the course offerings of the college, (2) education, while composed of philosophical and moral value systems, must still be run like a business, (3) public administrative stewardship of funds requires a constant re-evaluation of means (financial resources) and ends (fulfilling of community needs).

Middle management, such as coordinators, directors, assistant and associate deans have, traditionally, been at the mercy of a single set of either district

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[1]Extended Campus Segment of De Anza College, Cupertino, California

or college statistics for evaluation of program. This puts them at a decided disadvantage in the defense of their program area. Too often, statistics are difficult to come by and require expensive of non-available line time into the computer.

What is suggested here is an easily obtainable vehicle for the middle manager in charting course success or failure by area, instructor, and site. It is not intended as an all-inclusive answer, but can provide management with an objective and measurable tool for evaluation of program.

THE DIMENSIONS OF CHARTING

College managers live with a certain amount of mythology. The questions of when to cancel classes, where to offer certain courses, and what classes will go where, are often answered by imprecise tools. Many decisions are greatly influenced by (1) available faculty and curriculum, (2) availability of classroom space, (3) territoriality of programs and areas involved, (4) biases of those managing the curriculum, (5) limitations on college resources, and (6) biases of the community being served.

Such decisions as whether to cancel a class with a low pre-enrollment have often already been answered in the mind of management. Historical mythology has pre-conditioned a response within the manager. Too many managers use these pre-conditioned systems of prejudices to make important decisions concerning program.

The initial precept or foundation stone in charting is that of maintaining an un-biased, scientific attitude toward accumulation and analysis of data. The decision making process, using the results of charting, would include data that is current and part of a valid historical context. Charting would, as a vehicle for analysis, provide the manager with the substantive part of the

enrollment puzzle. To be totally effective charting must be used in conjunction with other analytical devices.

Charting will not, alone, tell the manager why a certain course or set of courses has not been successful at a definite time, in a specific place or during a given quarter or semester. It will, however, chart the success or failure of specific classes, environments, instructors, instructional areas or programs within the established success or failure model of Weekly Student Contact Hours (WSCH), Average Daily Attendance (ADA) and enrollments.

Charting does not address itself to the critical issue of whether a program or class should or shouldn't be offered at a "loss". Again, it does not help to answer the questions relating to how long a course or set of courses can be considered "new" and in need of nurturing. It also fails to adequately answer the questions of institutional commitments and priorities.

What charting does do is provide a manager with a low cost, accurate, and simple tool for program evaluation.

THE OPTIONS IN CHARTING

At De Anza College computer printouts are made available to administrative staff upon request. The information found in these printouts allows for limited accuracy. Precision, or pinpoint precision, comes when information from the printouts in each area is (1) updated to relect mistakes in computer processing of information, and (2) alignment of information to more accurately represent area, program division and segment realities. To chart enrollments, class seat count information is utilized from microfiche printouts for the four critical periods, or (1) pre-enrollment, (2) first-period, or class meeting, (3) first census period, and (4) second census period.

The actual time in physically charting these four periods is minimal. A

manual copying of the information is necessary as problems can result in placing too much credibility in the computer copy whether paper or microfiche. Such items as double listing of courses, late entries, incorrect numbering of courses, and other errors can only be picked up by those who have put the schedules together and those that are sensitive to errors within the schedule. Program managers are much more sensitive to their particular areas, and as a result, will be much more zealous in the creation of parameters. Usually, these parameters will be more accurately drawn by managers themselves and will tend to demonstrate with greater clarity a true picture on WSCH, FTE, ADA and income generation.

An option utilized by the Sunnyvale Center/De Anza College staff for charting is that of success ratio[2]. The College establishes minimums and maximums of enrollment. The relevant parameters are established within a yearly context of (1) amount of state and local income monies made available to the district and college, (2) cost of instructional program, and (3) political climates. Maximums and minimums provide general policies or operational systems which are set aside, occasionally, by special circumstances such as (1) grant funded courses, (2) spec ial emerging classes or seed[3] areas, and (3) courses in series that are necessary to complete curricular series.

The success rate applied to the charting data can be altered depending upon the philosophy of a particular manager, division or area. To an institution that views success as ADA generation, then, the ratio of success would be in numbers rather than retention. California state funding encourages high yield, low cost lecture courses. Curriculum, sites, courses and instructors

[2]The minimum allowable number for a "go" class at De Anza College for the Fall 1978 Quarter was 20 students. This was up 3 from the minimum of 17 for Spring 1978.

[3]Seed areas are those young programs in need of special nurturing.

that start with minimums (i.e. 17, 20, or 24) and lose no students from the first meeting to the second census period are less desirable than say sections of 100 that drop off to 30 or 40.

To the institution that sets maximums and watches carefully the retention rate of courses, a success ratio for retention and the meeting of maximums would have to be figured in.

The problems of institutional and program philosophy must be dealt with if charting rations are to be established, and if they are to become an integral part of the evaluation process.

A SUGGESTED METHOD OF CHARTING

The assumption here is that management will be interested in the quality and quantity of dimensions of instructional charting. It is assumed that relevant curriculum would (1) attract, and (2) maintain student interest. It is also assumed here that continued poor enrollment in courses is indicative of weaknesses in (1) instructional staff, (2) curriculum, (3) site and environment, or some other related issues such as publicity.

If a particular class is a go then it is naturally assumed that the minimums of the institutions, in terms of enrollment of students, has been met. A cancel would indicate that the minimums were not met and that this is either an indication of poor planning or some casual factor. Classes that close demonstrate good planning or indicate a philosophical commitment to offering a certain section at a loss to segment or division budgets.

METHODOLOGY AND DATA COLLECTION

One important positive element in this type of charting system is that items can be added and subtracted to either enlarge the data base or decrease the items being analyzed. The method employed for data gathering is that of

charting. A matrix grid is maintained by the Sunnyvale Center secretarial staff which includes enrollment information recording:

1. Pre-enrollment check from computer print-outs two weeks prior to the first class meeting of the quarter.
2. First class meeting counts. These counts are "eye-balled" and are verified head counts checked by either site coordinators or the Director, Sunnyvale Center.
3. First Census Week or apportionment period. This period covers the first four weeks of the quarter and is a legal day for audit purposes.
4. Second Census Week or apportionment period. This period covers the second four weeks of the quarter and is a legal day for audit purposes.

The above information is all taken from computerized sources updated by individual managers, and "cleaned up" for more representative enrollment figures and results.

SUCCESS RATIO FORMULA

RETENTION FACTOR - Formulas for success with ADA are tied into enrollment per instructional hour. A course, site or instructor can be charted as to the ratio of success obtained by taking the first meeting enrollment count and dividing it by the second apportionment, or eight week census enrollment number: (1M + 2CM = R.O.S.) This retention formula will not explain why these things do or do not happen.

GROSS ENROLLMENT FACTOR - A course, site or instructor can be charted as to its level of success inproducing income by adding enrollment counts for the first census weed (fourth) and second census week (eighth). The gross number produced from these two apportionment period allows for a quick production

check. Average class sizes can be determined by adding total two census enrollments and dividing by two. (1CM + 2CM = G.E.F.)

By using these two formulas management can chart the success of their program or area. The yield of sites, courses, and instructors can be compared and contrasted for evaluation purposes. The planning of instructional offerings in a program or area could use this information as backup data; using a fistorical chart covering a number of years, a prior quarter for the projecting of future class size, or as a management red-flag to chart low or high yield sites, courses and instructors.

The following formula can be used to convert information into WSCH (Weekly Student Contact Hours) which will allow for more accurate information in the Class Size Formula: (STUDENTS x HOURS/WEEK = WSCH)

Basically, California state apportionment has benefited those institutions that have put together the maximum number of students with the maximum allowable instructional hours.

SOME GENERAL OBSERVATIONS FROM THE DATA

The following section includes the gross data from the charting of Fall 1978 courses in the North Sunnyvale area. Assumptions from data including only one or two courses during a given quarter would be, at best unscientific. However, this information has definite value when compared and contrasted with the information developed by the Sunnyvale Center staff in the Extended Campus 1976-1977 Report 1 prepared in the Spring of 1978. This report titled "A Statistical Analysis of Extended Campus School Sites at De Anza College from Winter 1976 to Fall 1977"[4] reveals trends and information covering two and a half years of instructional programming.

The following are general observations using the present Fall 1978 data

[4]"A Statistical Analysis of Extended Campus School Sites at De Anza College from Winter 1976 to Fall 1977." Extended Campus Report, De Anza College, 1978.

and the information from the report:

1. Hope/De Anza is not a desirable site for offering evening classes.

2. Site cancellation ratings and site enrollment rankings do not seem to provide predictable elements in establishing the success or failure of a site. A great deal of historical inconsistencies and pattern irregularities seem to exist.

3. Benner School and the Sunnyvale Center seem to provide the highest yield for North Sunnyvale course offerings in terms of class size.

4. Humanities courses have much lower yield in terms of class size than the yield by Student Services, Sciences and Behavioral Sciences in Fall. This contrasts with the information gained from 1976 to 1977.

5. Programs such as Leisure Management, Physical Education, Accounting, Quality Assurance, Engineering, Data Processing, Transportation, Math, and English as a Second Language should be stimulated.

6. Programs such as Home Economics, Real Estate, ICS, and Health need to be evaluated.

G.E.N. (GROSS ENROLLMENT NUMBER)

Classes at De Anza College are cancelled if they fail to reach the minimum established number by the second class meeting. Exceptions to the procedure include:

(1) Courses that fall in a series and are essential for students within a specific divisional or segment program, (2) First meeting classes that appear so low that a second reading of the enrollment is unnecessary, and (3) Cancellation of a poorly pre-enrolled section.

Since classes or sections are cancelled using the criteria pre-determined by administration, class size by the first or second meeting of the section is

the major determining factor in allowing courses "to go".

To arrive at some consistency with the determining factor of class size, G.E.N. or the Gross Enrollment Number is used to evaluate the success of classes within a site, program or segment. The G.E.N. represents the total of class size from the two apportionment periods or the fourth and eighth census weeks count. This gross number will vary from quarter to quarter in value and will depend in "success" or rate of 'success" upon the minimum established by administration for that particular quarter.

An example of the variableness in success is seen in using contrasting minimums for Fall 1977 and Fall 1978. The minimum number of students possible for allowing a Fall 1978 section to go at De Anza College was 17. The minimum G.E.N. or Gross Enrollment Number would be 17 + 17 or 34. Since 17 was considered minimal, but acceptable. G.E.N. or Gross Enrollment Number counts would range from -34 to +34 and would be evaluated either - (number under 34) or + (number over 34).

This present study attempts to evaluated Fall 1978. The minimum number of students established by the administration for allowing sections "to go" was 20. The evaluation formula is the following:

20 (Fall 1978 Quarter minimum) x 2 (Census Periods) = 40
(G.E.N. level of acceptability)[5]

RAW DATA FROM THE CHARTING

The following pages include data that can be cumulative. The purpose is to provide accessible information to managers as to (1) first meeting enrollment figures, (2) first and second census as apportionment numbers, (3) rate of retention and gross enrollment figures.

[5]Success will be evaluated either - (Number under 40) or + (number over 40).

Since off-campus classes generally fill later than their on-campus counterparts, the inclusion of the second census enrollment figure allows for a more accurate assessment of course or program success with off-campus classes.

In a predominate number of cases, second census enrollment figures are higher off-campus than first census figures. First class meeting figures also are generally lower than first census enrollment counts. This information helps off-campus planners to see the need for patience in the first two weeks of registration.

This first group of charts show enrollment figures for the various school sites utilized by De Anza College off-campus.

POPULATION

The population of this study includes Extended Campus offerings for Fall 1978 at Cupertino Junior High, Hyde, Sunnyvale Center, Benner, Hope, and other sites (ie., Lockheed, West Coast Federal Savings, Sunnyvale Community Center, Bishop, First United Methodist Church, Plaza del Rey.).

TABLE 1

RATE OF RETENTION
BY SITE

RANK	SITE	CLASSES	RATE OF SUCCESS
1	Other Sites	6	121 percent
2	Cupertino Jr. High	11	113 percent
3	Hyde	22	107 percent
4	Sunnyvale Center	49	106 percent
5	Benner	13	104 percent
6	Hope	10	95 percent
*			

Sites in Table 1 are ranked according to the rate of success that courses experienced for Fall 1978. This rate of success was a situation factor arrived at by charting the percentage of enrollment growth from the first class meeting to the second census meeting.

*Charting for Lockheed was not done in rate of retention.

TABLE 2

GROSS ENROLLMENT FACTOR
BY SITE

RANK	SITE	CLASSES	G.E.N.
1	Lockheed	16	71.62
2	Other Sites	6	69.50
3	Hyde	22	69.95
4	Sunnyvale Center	49	54.80
5	Benner	13	55.00
6	Cupertino Jr. High	11	47.18
7	Hope	10	42.60

Sites in Table 2 are ranked according to the Gross Enrollment Numbers arrived at by adding the two census enrollments for Fall 1978.

TABLE 3

RATE OF RETENTION
BY PROGRAM

RANK	PROGRAM	CLASSES	RATE OF SUCCESS
1	ICS	3	2.21 percent
2	Human	2	1.70 percent
3	Transportation	5	1.17 percent
4	Engineering	4	1.16 percent
5	Guidance	2	1.14 percent
"	Quality Assurance	4	1.14 percent
6	Real Estate	10	1.13 percent
7	Spanish	4	1.07 percent
8	Physical Education	10	1.06 percent
"	Data Processing	4	1.06 percent
9	Purchasing	7	.96 percent
10	Business	9	.98 percent
11	Math	7	.98 percent
12	Accounting	7	.95 percent
13	ESL	5	.87 percent
14	English	8	.84 percent
15	Economics	3	.67 percent

Table 3 shows the ranking of curricular programs according to the rate of retention from the first class meeting to the second census meeting for Fall 1978.

TABLE 4

GROSS ENROLLMENT FACTOR
BY PROGRAM

RANK	PROGRAM	CLASSES	G.E.N.
1	Engineering	4	79.5
2	Purchasing	7	76.4
3	Data Processing	4	75.0
4	Transportation	5	74.4
5	Quality Assurance	4	70.0
6	Real Estate	10	65.3
7	Accounting	7	62.0
8	Physical Education	10	61.2
9	Math	2	57.5
10	Business	9	55.1
11	English	8	55.0
12	Spanish	4	54.0
13	Guidance	2	51.0
14	ESL	5	48.0
15	Home Economics	3	43.3
16	ICS	3	41.0
"	Human	2	41.0

Table 4 shows the ranking of curricular programs according to the Gross Enrollment Number - the G.E.N. shows an averaging of those course numbers within the program for Fall 1978.

TABLE 5

RATE OF RETENTION
SINGLE COURSE OFFERINGS

RANK	PROGRAM	RATE OF SUCCESS
1	French	1.46 percent
2	Philosophy	1.23 percent
3	History	1.18 percent
4	Mandarin	1.11 percent
5	Russian	1.04 percent
6	Health	.96 percent
7	Asian	.84 percent
8	Nursing	.69 percent

Table 5 shows the ranking of single course offerings for Fall 1978 in terms of rate of retention of students from the first meeting of the class to the second census meeting.

TABLE 6

GROSS ENROLLMENT FACTOR
SINGLE COURSE OFFERINGS

RANK	PROGRAM	RATE OF SUCCESS
1	Health	51.0 percent
2	Philosophy	52.0 percent
3	Russian	47.0 percent
4	French	45.0 percent
5	Asian	43.0 percent
6	History	37.0 percent
7	Mandarin	21.0 percent
8	Nursing	18.0 percent

Table 6 shows the ranking of single course offerings for Fall 1978 in terms of Gross Enrollment Numbers.